Chapter 7

# Applying the Concepts: StatCrunch Instructions

## Estimate the Probability of an Event

1. Open a blank data sheet.
2. Data → Simulate Data → Binomial
3. Under Number of rows and columns: type 1000 for Rows and 1 for Columns.
4. Binomial parameters: type 100 for n and .1667 for p
5. Under Seeding:
   1. Select “Use fixed seed”
   2. Type 777 in Seed
6. Click Compute!
7. Rename the header of the new column of data: Heads
8. Graph → Histogram
9. Select Column: Heads
10. Click Compute!
11. Stat → Summary Stats → Columns
12. Select Column(s): Heads
13. In the “Where” box enter:

*Heads = 29*

1. Statistics → n
2. Click Compute!

## Make a Statistical Inference

No tools are used in this activity.

## Evaluate a Hypothesis

1. Open the school.csv dataset in StatCrunch
2. Data → Compute → Expression
3. In the expression box, enter:

*count(AvgCourseDifficulty)*

1. Type “countAvgCourseDifficulty” as the Column label.
2. Click Compute!
3. Data → Compute → From Column
4. Select column → “AvgCourseDifficulty”
5. In the “Where:” box enter:

*AvgCourseDifficulty < 2*

1. Type “AvgCourseDifficultyLessThan2” as the Column label.
2. Click Compute!
3. Data → Compute → Expression
4. In the expression box, enter:

*count(*AvgCourseDifficultyLessThan2*)*

1. Type “CountAvgCourseDifficultyLessThan2” as the Column label.
2. Click Compute!
3. Divide the value under CountAvgCourseDifficultyLessThan2 by the value under countAvgCourseDifficulty

Question 3 is not available in StatCrunch.

## Perform T-tests on Observational Data

1. Open the volleyball.csv data in StatCrunch
2. Stat → T Stats→ One Sample → With Data
3. Select columns → hit\_perc
4. Hypothesis test for μ, enter:
   1. H0 : 30
   2. HA : “>”
5. Click Compute!

## Draw Conclusions from a Correlation

1. Open the icecream1.csv data in StatCrunch.
2. Go to Stat → Summary Stats → Correlation
3. Select columns → ice\_cream\_sales and number\_drownings
4. Click Compute!
5. Open the icecream2.csv data in StatCrunch.
6. Go to Stat → Summary Stats → Correlation
7. Select columns → ice\_cream\_sales, number\_drownings, temperature
8. Click Compute!

Calculating the SBI p-value for a correlation is not currently available in StatCrunch.

## Draw Conclusions from Observational Studies

1. Open the school.csv data in StatCrunch
2. Stat → T Stats → One Sample → With Data
3. Select columns → DailyFruitVeg
4. Under “Hypothesis test for μ” select:
   1. H0 : 2.21
   2. HA : “<”
5. Click Compute!

## Identify Type I and Type II Errors

No tools are used in this activity.

## Identify an A/B Test’s Null and Alternative Hypotheses

No tools are used in this activity.

## Perform T-tests on A/B Testing Data

1. Open portfolio\_2col.csv data in StatCrunch
2. Stat → T Stats → Two Sample → With Data
3. Sample 1 Values in → A
4. Sample 2 Values in → B
5. Optional graphs and tables → Summary statistics
6. Click Compute!

## Identify Type I and Type II Errors in A/B Testing Results

No tools are used in this activity.